

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANTHONY S. BRADLEY

Appeal 2007-0446
Application 09/612,810
Technology Center 3600

Decided: June 7, 2007

Before MURRIEL E. CRAWFORD, LINDA E. HORNER, and ANTON W. FETTING, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant seeks our review under 35 U.S.C. § 134 of the Examiner's rejection of claims 1-6, 8, 11, 13-35, 37-43, 45-72, 76, and 77. Claims 7, 9, 10, 12,

Appeal 2007-0446
Application 09/612,810

36, 44, and 73-75 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We AFFIRM-IN-PART.

THE INVENTION

Appellant's claimed invention is to a method of stabilizing and positioning a geotextile tube or container, such as is used during storms of hurricane force to prevent beach erosion (Specification 3:18-25 and 4:16-17). Claim 1, reproduced below, is representative of the subject matter on appeal.

1. A system for maintaining fill material solids in position to form a barrier or dam, the system comprising:
 - (a) a first elongated sheet of geotextile material;
 - (b) a means for seaming the first elongated sheet into a first continuous tubular-shaped container having an inside space;
 - (c) at least two ballast tubes disposed within said inside space of the container; and
 - (d) fill material solids held inside the ballast tubes;
 - (e) wherein the fill material solids are held in position by the ballast tubes and the first tubular-shaped container to form a barrier or dam.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Labora	GB 1 487 986	Oct. 5, 1977
Hepworth	US 3,957,098	May 18, 1976
Dooleage	US 5,125,767	Jun. 30, 1992
Holmberg	US 5,158,395	Oct. 27, 1992
Bradley	US 5,902,070	May 11, 1999

The following rejections are before us for review.

1. Claims 1, 4, 5, 16-18, 22-25, 31-34, 37, 42, and 45-57 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Dooleage and Hepworth.
2. Claims 2, 3, 35, 38-41, 49, 50, and 58-61 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Dooleage, Hepworth, and Bradley.
3. Claims 37 and 43 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Dooleage, Hepworth, and Labora.
4. Claims 6, 8, 11, 13-15, 19-21, and 26-30 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Dooleage, Hepworth, and Holmberg.
5. Claims 62-72, 76, and 77 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Dooleage and Bradley.¹

¹ The Examiner states the rejection of claims 76 and 77 as unpatentable over Dooleage in view of Bradley (Answer 17) and, in the alternative, Bradley in view of Dooleage (Answer 20). We treat these rejections together, because they are based on the same combination of references. *See In re Bush*, 296 F.2d 491, 496, 131 USPQ 263, 267 (CCPA 1961) (“where a rejection is predicated on two references each containing pertinent disclosure which has been pointed out to the applicant, we deem it to be of no significance, but merely a matter of exposition, that the rejection is stated to be on A in view of B instead of on B in view of A, or to term one reference primary and the other secondary.”)

Appeal 2007-0446
Application 09/612,810

FIRST ISSUE: DOOLEAGE AND HEPWORTH

The Examiner rejected claims 1, 4, 5, 16-18, 22-25, 31-34, 37, 42, and 45-57 under 35 U.S.C. § 103(a) as unpatentable over Dooleage and Hepworth. Appellant contends that Dooleage does not disclose ballast tubes (Reply Br. 13), and there is no motivation to modify the bags of Dooleage to fill them with the solid fill material, as taught by Hepworth (Reply Br. 9-13). Appellant further contends that even when combined, Dooleage and Hepworth fail to teach or suggest all of the elements of the rejected claims (Reply Br. 15-24). The Examiner contends that “it would have been obvious to one of ordinary skill in the art, at the time the invention was made to provide the barrier bags of Dooleage, with solid fill materials, as taught by Hepworth et al., in order to expand the utility of the system, by configuring the system to dissipate wave energy” (Answer 4). The Examiner further contends that, when so combined, Dooleage and Hepworth meet all of the limitations of the rejected claims (Answer 3-9). The issue before us is whether the combination of Dooleage and Hepworth would have led one having ordinary skill in the art at the time of the invention to the subject matter of claims 1, 4, 5, 16-18, 22-25, 31-34, 37, 42, and 45-57.

FINDINGS OF FACT

Dooleage discloses a method and apparatus for making and using barriers formed from water filled bags that are suitable for damming water, directing water flow, dissipating water energy and for other purposes (Dooleage, col. 1, ll. 50-64 Objects of Invention). Dooleage recognizes that if a single, elongate, water filled

Appeal 2007-0446
Application 09/612,810

flexible bag is placed transversely to water flow, as a water barricade or buffer, the pressure of the continuing water against the sidewall of the bag will cause the bag to roll (Dooleage, col. 1, ll. 44-49). As such, Dooleage discloses a barrier 10, including a pair of flexible, impermeable bags 11 and 12, held together in a side-by-side relationship by a surrounding cover 13 (Dooleage, col. 2, ll. 32-35).

Dooleage discloses that the cover 13 could be another bag, a net, or straps surrounding the bags 11 and 12 (Dooleage, col. 2, ll. 35-40). Dooleage teaches that when the bags 11 and 12 are filled with water, the adjacent sides of the bags are in engagement and, at the point of engagement, will tend to rotate in opposite directions (in response to the tendency of the bags to roll) and become mutually locked and stable against rolling. As such, Dooleage's bags 11 and 12 act as ballasts because they act to improve stability and control of the barrier 10.

Dooleage does not disclose forming its outer container from geotextile material or filling the ballast tubes with fill material solids.

Hepworth discloses an erosion control bag that may be used to control erosion of beaches or stream banks, to construct artificial reefs for shorelines, or to control flood waters (Hepworth, col. 1, ll. 6-9). In one embodiment, Hepworth discloses an erosion control reef 40 comprised of a plurality of erosion control bags 10 (Hepworth, col. 3, ll. 10-38). Hepworth discloses that the bag 10 is made of a synthetic fabric, such as nylon, polypropylene, polyesters, and the like (Hepworth, col. 1, ll. 14-15), and the fabric has a porosity between 10 and 35 cubic feet per minute so that any air and/or water within the bag may escape from the bag at the same rate that water and/or a filler is pumped into the bag (Hepworth, col. 1, ll. 21-

Appeal 2007-0446
Application 09/612,810

24). Hepworth discloses that the filler may be sand, gravel, cement, etc. (Hepworth, col. 1, l. 25). Hepworth discloses that when the porosity of the bag is below 10 cubic feet per minute, the water does not escape fast enough, and the sand will back out through the input nozzle opening (Hepworth, col. 3, ll. 32-35). One advantage of Hepworth's bag is that it can be filled in situ above or below water level (Hepworth, col. 1, ll. 11-12 and 26-28).

PRINCIPLES OF LAW²

In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). It is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *See id.* at 1073, 5 USPQ2d at 1598. In so doing, the examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), *viz.*, (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. In addition to these factual determinations, the examiner must also provide "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir 2006) (*cited with*

² The legal principles provided in this section apply to all of the issues in this appeal.

Appeal 2007-0446
Application 09/612,810

approval in KSR Int'l. Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007)). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. See *Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444. *Id.* at 1445, 24 USPQ2d at 1444. See also *Piasecki*, 745 F.2d at 1472, 223 USPQ at 788. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See *Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444; *Piasecki*, 745 F.2d at 1472, 223 USPQ at 788.

“[T]he principles laid down in *Graham* reaffirmed the “functional approach” of *Hotchkiss*, 11 How. 248, 13 L.Ed. 683.” *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1739, 82 USPQ2d 1385, 1395 (2007). In addition to these factual determinations, the examiner must also provide “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir 2006) (*cited with approval in KSR Int'l. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007)). The Supreme Court in *KSR* instructed that “this analysis should be made explicit,” but it does not need to “seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 127 S. Ct. at 1741, 82 USPQ2d at 1396.

In *KSR*, the Court expounded on the types of evidence that may be considered in making an obviousness determination, stating, “Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the

Appeal 2007-0446
Application 09/612,810

effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patents at issue.” *KSR*, 127 S. Ct. at 1740, 82 USPQ2d at 1396. The Court explained,

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740, 82 USPQ2d at 1396. The Court further explained,

The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

Id. at 1742, 82 USPQ2d at 1397.

ANALYSIS

We find sufficient teachings in Dooleage and Hepworth that would have provided an incentive for one skilled in the art to have combined their teachings in the manner recited in claim 1. First, both Dooleage and Hepworth provide devices

Appeal 2007-0446
Application 09/612,810

used as barriers or dams for controlling water flow and preventing erosion. Dooleage's barrier is filled with water, and Hepworth's barrier is filled with solid fill material such as sand. Because Hepworth's barrier is disclosed as being used to control erosion, including beach erosion, it is clear that Hepworth's barrier would suffer from the same problem as that solved by Dooleage, *viz.*, as the water energy from the waves impacts the side wall of the bag, it will cause the barrier to roll. Dooleage teaches a technique of using ballast tubes within a larger outer container to provide stability against rolling. It would have been obvious to one skilled in the art to have used this same technique to improve Hepworth's barrier in the same way to solve the same problem.

Further, Hepworth teaches a barrier made of porous fabric and filled with sand in such a manner that the barrier can be filled in situ and below water level. It would have been obvious to modify the barrier of Dooleage to use a porous fabric, in lieu of its impermeable material, such that one could fill the ballasts of Dooleage with sand, in the manner disclosed in Hepworth, because the ballasts could then be used for situations in which they must be filled below water level. As the Examiner explained, such an improvement to Dooleage would expand the utility of the system because it could be used in more varied situations than the water-filled ballast system of Dooleage.

Appellant argues that because Dooleage's bags are filled with water, they cannot act as ballasts in a water environment (Reply Br. 13). We are not persuaded by this argument. The Specification does not provide any definition of the term "ballast" and, in fact, it discloses in one embodiment that the ballast tube can be

Appeal 2007-0446
Application 09/612,810

filled with only water (Specification 29:19). A common definition of “ballast” is “something that gives stability or weight.” *Webster’s Third International Dictionary* (unabridged) 167, G. & C. Merriam Co. (1971). Dooleage describes that its water-filled bags provide stability from rolling. As such, we find that Dooleage’s bags 11 and 12 meet the claimed ballast tubes of claim 1.

We find ample teachings in Dooleage and Hepworth that would have led one having ordinary skill in the art at the time of the invention to the system of claim 1. Appellant did not provide us with any separate arguments for patentability of claims 4, 5, and 16-18. As such, these claims fall for the same reasons provided for claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2006).

Appellant argues that claims 22-24 and 31-34 are patentable because the Examiner’s rejection rests on a factually inaccurate portrayal of Hepworth (Reply Br. 16-17). In particular, the Examiner held that “it would have been obvious to one of ordinary skill in the art, at the time the invention was made to provide the method of shoreline revetment of Dooleage, with the steps of inflating a plurality of erosion control bags with water and then a slurry, using immediately available fill material, such as sea floor or beach sand, as taught by Hepworth et al., in order to create new habitats, such as artificial reefs for sea animals” (Answer 6).

Appellant argues that “While Hepworth et al speaks of an artificial reef as an erosion control reef, neither Hepworth et al … nor Dooleage says anything about creating artificial reefs as new habitats for sea animals” (Reply Br. 16-17). We find Appellant’s argument unpersuasive. Hepworth discloses erosion control bags 10 can be used to construct artificial reefs, such as reef 40, for shorelines. This

Appeal 2007-0446
Application 09/612,810

teaching in Hepworth of using the bags 10 to create an artificial reef would have suggested to one having ordinary skill in the art that the bags 10 could also be used to create artificial reefs underwater, since Hepworth teaches that its bags 10 can be filled in situ below water level, to create new habitats for sea animals. Such an extension of the teaching of Hepworth is a predictable variation of the art, in which the bags 10 are functioning in the same manner, but being used for a related application. As such, we sustain the Examiner's rejection of claim 22. Appellant did not provide us with any separate arguments for patentability of claims 23, 24, and 31-34. Accordingly, these claims fall for the same reasons provided for claim 22.

Appellant argues that claim 25 is patentable because the combination of Dooleage and Hepworth would not have led one skilled in the art to fill a ballast tube with solid fill material in a lower portion and a liquid in the upper portion, so that the upper portion of the tube is capable of absorbing wave energy (Reply Br. 17). We agree with Appellant.

Dooleage teaches ballast tubes made of impermeable material and filled completely with water. On the other hand, Hepworth teaches a porous barrier bag filled entirely with a solid fill material, where the water from the slurry exits the bag at the same rate as it enters during the filling operation. As such, even when the references are combined, as described above, their teachings would not lead one skilled in the art to fill a ballast tube partially with solid fill material and partially with liquid such that the upper portion of the tube is capable of absorbing

wave energy, absent the benefit of hindsight. As such, we do not sustain the Examiner's rejection of claim 25.

Claim 42 recites, "A tubular apparatus for forming a barrier, comprising: ... (c) a plurality of longitudinally spaced reinforced regions along the length of the elongated container" The Examiner appears to have found that Dooleage discloses reinforced regions in an alternate embodiment in which "straps (not shown) [can be] wrapped around the bags [11 and 12] and spaced therealong" (Answer 7 and Dooleage, col. 2, ll. 39-40). Dooleage describes these straps, however, as being used in lieu of a bag or cover 13, to hold bags 11 and 12 (the ballast tubes) together in a side-by-side relationship, and does not disclose applying the straps to the outside of cover 13. Further, one skilled in the art would have no reason to add reinforced regions along the cover of Dooleage's barrier absent the teaching in the present application to do so. Accordingly, we do not sustain the Examiner's rejection of claim 42, or its dependent claim 37, as unpatentable over Dooleage and Hepworth.

Appellant contends that claim 45 is patentable because "Hepworth does not contemplate infusion of water into any tube via the porous walls of the tube" (Reply Br. 21). We disagree. While Hepworth may not explicitly teach adding water to the barrier via the porous walls, if the ballast tubes of Dooleage were modified with the porous material of Hepworth, for the reasons discussed above with respect to claim 1, then water would be able to pass between each of the two ballast tubes and the interior of the container and between one of the ballast tubes and the other by virtue of the porous nature of the ballast tube material, as claimed.

Appeal 2007-0446
Application 09/612,810

As such, we sustain the Examiner's rejection of claim 45. Appellant did not provide us with any separate arguments for patentability of claims 52-57 (Reply Br. 24). As such, these claims fall for the same reasons provided for claim 45.

Appellant contends that claims 46-48 are patentable because there is no reason, in view of the combined teachings of Dooleage and Hepworth, to coat the fabric of the container to make it impermeable (Reply Br. 21-22). Appellant similarly contends that claims 49 and 50 are patentable because there is no reason, in view of the combined teachings of Dooleage and Hepworth, to add an impermeable liner to the container (Reply Br. 22-23). We agree with Appellant.

Dooleage teaches ballast tubes made of impermeable material and filled completely with water. On the other hand, Hepworth teaches a porous barrier bag filled entirely with a solid fill material, where the water from the slurry exits the bag at the same rate as it enters during the filling operation. If one were to use the filling method of Hepworth to fill the Dooleage's ballasts in situ with the water/sand slurry, then Hepworth's method would require that the outer container be porous, so that water could exit the container at the proper rate, as taught by Hepworth. As such, we see no reason why one skilled in the art would have been motivated to render the outer container impermeable, either by coating or a liner, absent the teaching of the present invention. As such, we do not sustain the Examiner's rejection of claims 46-50 as unpatentable over Dooleage and Hepworth.

Appellant contends that claim 51 is patentable because the final rejection is deficient in providing any motivation for introducing solid fill material into the

Appeal 2007-0446
Application 09/612,810

container of Dooleage (Reply Br. 24). We found absolutely no analysis or articulation in the Examiner's Answer as to how the prior art would have rendered claim 51 obvious to one skilled in the art. As such, the Examiner has failed to present a *prima facie* case of obviousness, and we do not sustain the rejection of claim 51.

SECOND ISSUE: DOOLEAGE, HEPWORTH, AND BRADLEY

The Examiner rejected claims 2, 3, 35, 38-41, 49, 50, and 58-61 under 35 U.S.C. § 103(a) as unpatentable over Dooleage, Hepworth, and Bradley. Appellant contends that Bradley does not cure the deficiencies of the Dooleage and Hepworth combination (Reply Br. 24-30). The Examiner relies on Bradley for its teaching of a method of making the container from multiple elongated sheets that are formed in a spiral and stitched together (Answer 10-11), reinforced regions formed by spaced hoops (Answer 11), and forming erosion control bags with two layers of geotextile material where the inner layer can be permeable or impermeable (Answer 12). The issue before us is whether the combination of Dooleage, Hepworth, and Bradley would have led one having ordinary skill in the art at the time of the invention to the subject matter of claims 2, 3, 35, 38-41, 49, 50, and 58-61.

FINDINGS OF FACT

We make the following additional findings of fact:

Bradley discloses a geotextile container made by winding material in a helical manner and then stitching the adjacent edges together to form a seam (Bradley, col. 10, ll. 14-26). Bradley teaches that the helical seam further strengthens the container by acting as might a reinforcing rope wound around the container along the length thereof (Bradley, col. 10, ll. 37-39). As such, Bradley teaches that it was known in the art to reinforce longitudinally spaced regions along the length of a container using a spiral seam or reinforcing rope. Bradley further teaches a liner can be used to render the container permeable or non-permeable to water, depending on the application for which the container is intended (Bradley, col. 10, ll. 48-51). In particular, Bradley teaches, “if the container is to be filled with silt, which does not settle very well, one might employ an inner liner that is permeable to water” (Bradley, col. 10, ll. 53-56).

ANALYSIS

Appellant argues that claims 2 and 3, 38-41, and 58-61 are patentable because Bradley fails to cure the deficiencies of Dooleage and Hepworth, as applied to claims 1, 42, and 45, respectively (Reply Br. 24-25). We found no deficiency in the underlying Examiner’s rejection of claims 1 and 45. Accordingly, we sustain the Examiner’s rejection of claims 2, 3, and 58-61 as obvious over Dooleage, Hepworth, and Bradley.

Appeal 2007-0446
Application 09/612,810

We did not, however, sustain the Examiner's rejection of claim 42 as obvious in view of Dooleage and Hepworth, because we determined that the combination would not have led one skilled in the art to the claimed reinforced regions. We must now determine whether Bradley cures this deficiency in the art. As we found *supra*, Bradley teaches that it was known in the art to reinforce longitudinally spaced regions along the length of a container using a spiral seam or reinforcing rope. It would have been obvious, in view of this teaching in Bradley of reinforcing the container, to have reinforced the container of Dooleage, as modified by Hepworth, to further strengthen the container against the force of the water. As such, we sustain the Examiner's rejection of claims 38-41.³

With regard to claims 35, 49, and 50, we agree with Appellant that Bradley fails to cure the deficiencies that we noted *supra* in Dooleage and Hepworth. In particular, these claims recite an impermeable inner liner within the container. We recognize that Bradley teaches a liner can be used to render the container permeable or non-permeable to water, depending on the application for which the container is intended. It is not clear, however, from Bradley why one skilled in the art, using the filling method of Hepworth to fill Dooleage's ballasts *in situ* with water/sand slurry, would have been motivated to render the outer container impermeable, either by coating or a liner, absent the teaching of the present invention. Instead, Bradley teaches, similar to Hepworth, that "if the container is to be filled with silt, which does not settle very well, one might employ an inner

³ We further encourage the Examiner to consider whether a rejection of claims 37 and 42 under 35 U.S.C. § 103(a) as obvious in view of Dooleage, Hepworth, and Bradley is warranted.

Appeal 2007-0446
Application 09/612,810

liner that is permeable to water" (Bradley, col. 10, ll. 53-56). As such, the combination of Dooleage, Hepworth, and Bradley would not have led one skilled in the art to use a water impermeable liner in the container. Accordingly, we do not sustain the Examiner's rejection of claims 35, 49, and 50 as obvious over Dooleage, Hepworth, and Bradley.

THIRD ISSUE: DOOLEAGE, HEPWORTH, AND LABORA

The Examiner rejected claims 37 and 43 under 35 U.S.C. § 103(a) as unpatentable over Dooleage, Hepworth, and Labora. Appellant contends that Labora does not cure the deficiencies of the Dooleage and Hepworth combination, as applied to claim 42, from which claims 37 and 43 depend (Reply Br. 30-31), and there is no suggestion to use the belt-like structures 6, 7, and 8 of Labora around the container of Dooleage housing liquid-filled ballast tubes (Reply Br. 31-32). The Examiner relies on Labora for its teaching of using reinforcing straps 6, 7, and 8 to support the container (Answer 13). The issue before us is whether the combination of Dooleage, Hepworth, and Labora would have led one having ordinary skill in the art at the time of the invention to the subject matter of claims 37 and 43.

FINDINGS OF FACT

We make the following additional findings of fact:

Labora discloses a subaqueous envelope 1 intended to hold cement or some other fluid solidified filling substance (Labora 1:72-77). In another embodiment, envelope 5 is shown fitted with members 6, 7, and 8 for confining the envelope transversely (Labora 2:7-9). Labora teaches, “[b]y arranging the confining members in a suitable manner, it is possible in the end to obtain the desired shape for the member once filled, which considerably increases its possible uses, in particular as a result of the opportunity which it provides of placing the constructional element in positions close to the vertical and on slopes” (Labora 2:15-23). As such, Labora teaches that it was known in the art to secure containers longitudinally along the length using hoops or belts to increase the number of possible uses of the container.

ANALYSIS

We did not sustain the Examiner’s rejection of claim 42 as obvious in view of Dooleage and Hepworth, because we determined that the combination would not have led one skilled in the art to the claimed reinforced regions. We must now determine whether Labora cures this deficiency in the art. As we found *supra*, Labora teaches that it was known in the art to secure containers longitudinally along their length using hoops or belts to increase the number of possible uses of the container. One skilled in the art would have been motivated by this teaching of Labora to add belts or hoops to the Dooleage barrier, as modified by Hepworth, so

Appeal 2007-0446
Application 09/612,810

that the barrier retains its shape and is useful on sloped beachfronts to control erosion. As such, we sustain the Examiner's rejection of claims 37 and 43.⁴

FOURTH ISSUE: DOOLEAGE, HEPWORTH, AND HOLMBERG

The Examiner rejected claims 6, 8, 11, 13-15, 19-21, and 26-30 under 35 U.S.C. § 103(a) as unpatentable over Dooleage, Hepworth, and Holmberg. Appellant contends that Holmberg does not cure the deficiencies of the Dooleage and Hepworth combination for the same reasons provided with respect to claims 1, 16, and 25 (Reply Br. 32), and Hepworth does not teach filler tubes located within the cradle tube (Reply Br. 34).⁵ The Examiner relies on Holmberg for its teaching of using erosion control mats provided with cradle tubes 26 filled with solid fill material, that are positioned outside and adjacent to each of a plurality of erosion control bags 24 (Answer 14-15). The issue before us is whether the combination of Dooleage, Hepworth, and Holmberg would have led one having ordinary skill in the art at the time of the invention to the subject matter of claims 6, 8, 11, 13-15, 19-21, and 26-30.

⁴ We further encourage the Examiner to consider whether a rejection of claim 42 under 35 U.S.C. § 103(a) as obvious in view of Dooleage, Hepworth, and Labora is warranted.

⁵ Appellant makes this argument with respect to claims 11, 13-15, and 19-21; however, only claim 11 contains the filler tube limitation.

FINDINGS OF FACT

We make the following additional findings of fact:

Appellant admits on page 34 of the Reply Brief that "Holmberg discloses a cradle tube 26."

Holmberg discloses an erosion control foundation mat having a middle elongated tubular enclosure and smaller diameter adjacent side enclosures that act as stabilizing elements (Holmberg, col. 2, ll. 50-56). Holmberg discloses that the smaller side enclosures (cradle tubes) are pumped with fill material (Holmberg, col. 3, l. 47). Holmberg does not teach ballast tubes or filling tubes in a lower portion with solid fill material and an upper portion with a liquid. Holmberg also does not disclose separate filler tubes within a cradle tube.

ANALYSIS

Appellant argues that claims 6, 8, 13-15, 19-21 and 26-30 are patentable because Holmberg fails to cure the deficiencies of Dooleage and Hepworth, as applied to claims 1, 16, and 25, respectively (Reply Br. 24-25). We found no deficiency in the underlying Examiner's rejection of claims 1 and 16. Accordingly, we sustain the Examiner's rejection of claims 6, 8, 13-15, and 19-21 as obvious over Dooleage, Hepworth, and Holmberg.

We did not sustain the Examiner's rejection of claim 25 as obvious in view of Dooleage and Hepworth, because we determined that the combination would not have led one skilled in the art to the claimed ballast tube containing a lower portion filled with solid fill material and an upper portion filled with a liquid. We

Appeal 2007-0446
Application 09/612,810

agree with Appellant that Holmberg does not cure this deficiency in the art. As such, we do not sustain the rejection of claims 26-30 as obvious over Dooleage, Hepworth, and Holmberg.

Appellant argued that claim 11 is separately patentable because Hepworth does not teach filler tubes located within the cradle tube (Reply Br. 34). We agree with Appellant. As we found *supra*, Holmberg does not disclose separate filler tubes within a cradle tube. The Examiner appears to rely on Dooleage for this teaching, stating “Dooleage discloses positioning a filler tube (20) within a ballast tube (19), which together form an anchor means (19), that facilitates holding the larger bags in place, while said larger bags (11, 12) are filled” (Answer 15). We disagree with the Examiner’s interpretation of Dooleage. Dooleage does not disclose a filler tube within a ballast tube. Rather, Dooleage appears to disclose, as shown in Figure 5, a donut-shaped bag 20 disposed within cover 13. We fail to see how to one having ordinary skill in the art would have applied the description of an anchor means of Dooleage to modify the cradle tubes of Holmberg by inserting filler tubes within the cradle tubes without using hindsight. As such, we do not sustain the Examiner’s rejection of claim 11.

FIFTH ISSUE: DOOLEAGE AND BRADLEY

The Examiner rejected claims 62-72, 76, and 77 under 35 U.S.C. § 103(a) as unpatentable over Dooleage and Bradley. Appellant contends Dooleage fails to disclose a plurality of transverse reinforced regions along the length of the elongated container (Reply Br. 37), and the Examiner has provided no explanation

Appeal 2007-0446
Application 09/612,810

of why a skilled artisan would deem it feasible or desirable to supply reinforcing regions, such as in Bradley, to Dooleage's water-filled barrier (Reply Br. 39). The Examiner found that Bradley teaches it was known in the art to form erosion control bags with several layers of geotextile material, which can be stitched together along a linear or spiral, longitudinal seam, where the spiral seam forms a plurality of transverse reinforced regions and define reinforcing anchor straps (Answer 19). The Examiner held that it would have been obvious to provide the barrier of Dooleage with a multi-layered erosion bag, as taught by Bradley, in order to form a barrier of sufficient strength for its intended use (Answer 19). The Examiner also held that it would have been obvious to provide the barrier of Bradley with at least one ballast tube, as taught by Dooleage, in order to form a barrier of a desired height (Answer 20). The issue before us is whether the combination of Dooleage and Bradley would have led one having ordinary skill in the art at the time of the invention to the subject matter of claims 62-72, 76, and 77.

FINDINGS OF FACT

We make the following additional findings of fact:

Bradley discloses that it was known in the art to use geotextile containers in a body of water, such as a bay or a river, to facilitate control of erosion, and that the container can be filled with material dredged from the bottom of the body of water to provide weight to maintain the container in position (Bradley, col. 1, ll. 7-21). Bradley further teaches that due to the large size of these containers

(e.g., up to 2,000 feet in length with a circumference of about 45 feet or more), the pressure of the filling pumps and the weight of the fill material stresses the geotextile material and seams (Bradley, col. 1, ll. 26-40). Bradley discloses a geotextile container made by winding material in a helical manner and then stitching the adjacent edges together to form a seam (Bradley, col. 10, ll. 14-26). Bradley teaches that the helical seam further strengthens the container by acting as might a reinforcing rope wound around the container along the length thereof (Bradley, col. 10, ll. 37-39). As such, Bradley teaches that it was known in the art to reinforce longitudinally spaced regions along the length of a container using a spiral seam or reinforcing rope.

ANALYSIS

As we found *supra*, Bradley teaches that it was known in the art to reinforce longitudinally spaced regions along the length of a container using a spiral seam or reinforcing rope. Bradley does not teach using ballast tubes within its container. However, if Bradley's container was used in a body of water having tidal currents, such as a bay, then the pull of the tidal water against the container would cause the container to have a tendency to roll. As we found *supra*, Dooleage teaches a technique of using ballast tubes within a larger outer container to provide stability against rolling. It would have been obvious to one skilled in the art to have used this same technique to improve Bradley's container in the same way to solve the same problem. As such, we sustain the Examiner's rejection of claims 62-72, 76, and 77 as unpatentable over Dooleage and Bradley.

Appeal 2007-0446
Application 09/612,810

CONCLUSIONS OF LAW

We conclude that Appellants have not shown that the Examiner erred in rejecting:

- claims 1, 4, 5, 16-18, 22-24, 31-34, 45, and 52-57 as unpatentable over Dooleage and Hepworth;
- claims 2, 3, 38-41, and 58-61 as unpatentable over Dooleage, Hepworth, and Bradley;
- claims 37 and 43 as unpatentable over Dooleage, Hepworth, and Labora;
- claims 6, 8, 11, 13-15, and 19-21 as unpatentable over Dooleage, Hepworth, and Holmberg; and
- claims 62-72, 76, and 77 as unpatentable over Dooleage and Bradley.

We conclude that the Examiner erred in rejecting:

- claims 25, 37, 42, 46-51 as unpatentable over Dooleage and Hepworth;
- claims 35, 49, and 50 as unpatentable over Dooleage, Hepworth, and Bradley; and
- claims 11 and 26-30 as unpatentable over Dooleage, Hepworth, and Holmberg.

DECISION

The Examiner's rejections under 35 U.S.C. § 103(a) of: claims 1, 4, 5, 16-18, 22-24, 31-34, 45, and 52-57 as unpatentable over Dooleage and Hepworth; claims 2, 3, 38-41, and 58-61 as unpatentable over Dooleage, Hepworth, and

Appeal 2007-0446
Application 09/612,810

Bradley; claims 37 and 43 as unpatentable over Dooleage, Hepworth, and Labora; claims 6, 8, 11, 13-15, and 19-21 as unpatentable over Dooleage, Hepworth, and Holmberg; and claims 62-72, 76, and 77 as unpatentable over Dooleage and Bradley are sustained.

The Examiner's rejections under 35 U.S.C. § 103(a) of: claims 25, 37, 42, 46-51 as unpatentable over Dooleage and Hepworth; claims 35, 49, and 50 as unpatentable over Dooleage, Hepworth, and Bradley; and claims 11 and 26-30 as unpatentable over Dooleage, Hepworth, and Holmberg are not sustained.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED-IN-PART

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